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A VISIT TO LAKE NIGOTHORUK AND THE MOUNT WELLINGTON DISTRICT, GIPPSLAND.

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IT is now pretty generally known that there is a mountain lake in North Gippsland, sheltered and hidden by the spurs and hills around Mount Wellington. This lake was unknown even to the blackfellows until somewhere about fifty years ago, when two natives of the Welwenduk tribe came upon it while in search of wombats. The district claimed as its particular and private hunting and foraging ground by each of the Gippsland tribes was defined by the watersheds between the different rivers. Thus, the Bundaurat tribe owned all rights of the Macallister basin, including the basin of the Wellington, which is a tributary. The Nigothoruk (Wellington Mountain) blacks claimed the neighbouring valley on the east, that of the Avon and its tributaries, which drain the plains over Mount Wellington. It was the Welwenduk division of this tribe, which occupied the lower Avon, to which "Billy" and his father, the discoverers of the lake, belonged. They observed that while a stream ran down into the lake from the plains belonging to the upper division of their tribe, there was no communication to be seen between the lake and the Wellington River and territory of the Bundaurat. They accordingly annexed the lake as very properly belonging to them, and made use of it until the time when, early in the fifties, the native police raided the Gippsland blacks and ejected them from their various lands.

No white man had seen the lake until in 1886 a stockman named Snowden, working up the Wellington valley, saw the lake from the top of a spur, visited it, and made known its existence.

In the same year Mr. Howitt made a first attempt, with old Billy as a guide, to reach this "big fellow waterhole what creek go in and never come out again." They tried first to follow the ridge between Ben Cruachan Creek and the Avon River, but were forced back by bad weather. They twice afterwards endeavoured to force a way along the Mount Angus Range, on the east side of the Avon, but the country was so rugged that a horse's shoe was pulled off, and the explorers had to return as best they could. The horse was lame for three months after-

wards. Meanwhile news came of Snowden's success, and that Mr. Riggall, of Glen Falloch station, had also reached the lake. Accordingly Mr. Howitt saw that the Macallister and Wellington route was the most practicable, and in a fourth attempt succeeded in reaching the lake with his black friend, at Easter, 1887. Mr. Howitt published accounts of his trip in the papers, and others were now tempted to visit this remarkable district. Mr. Riggall took up a party of thirty; they led down, however, only a single pack-horse to the lake. The Misses May and Annie Howitt, with their father, at Christmas time, 1887, made another vain attempt to reach the goal by way of the Mount Angus Range, but in the following February, 1888, they were successful, taking this time the Macallister route, and rode triumphantly down to the shores of the lake, where we found evidence of their visit in certain commemorative inscriptions.

It was seen then that the lake was held up in the valley by a comparatively low and level barrier of rocky boulders. It resembled nothing else of the kind known in Australia, but called to mind the lakes of mountain districts in Europe, lying in a rock-basin deeper in the middle than at the upper or the lower ends, but with the further peculiarity that, while one creek was constantly running into the upper end, and another clearly brought in floods of rain and melted snow at intervals, there was no outlet at all visible. The camping-ground at the lake is desperately bad for horses, from its stony nature and lack of feed, and Mr. Howitt was unable to examine fully the nature of the barrier, or to descend the valley below in order to discover the mode of issue of the water. The glaciation of the Australian Alps has been a favourite topic of late years with our geologists, and while the evidence hitherto brought forward of the existence of glaciers in former times consisted only in boulders and striations of the rocks, it seemed at first as if here was magnificent testimony in the shape of a tarn held up by the terminal moraine of a glacier in the basin which the glacier had excavated out of its rocky bed. Such evidence would be decisive, and it became a matter of importance to make a close investigation of the barrier and of the valley below.

Mr. Howitt had mentioned the matter to the other members of the party, who felt considerable interest in the geological problem, and who gladly agreed to join him in a fresh expedition, having the further hope of making some good zoological finds in such an out-of-way locality. It was a ticklish sort of place to venture into, but we felt ourselves safe in the hands of such a veteran and accomplished bushman as Mr. Howitt.

Once or twice previously we had made our arrangements, but each time some unforeseen contingency prevented us from carrying out our intentions. At last, however, all three of us succeeded

in escaping from Melbourne together, and we set out joyfully for Heyfield on the 23rd of December, 1890. Two of us, Messrs. Lucas and Dendy, started by the early train, leaving Hawksburn station at 8 a.m., with the bulk of our impedimenta, while our leader, Mr. Howitt, was in this instance to be our follower by a later train and to meet us at Heyfield.

It was supposed to be the duty of the first arrivals to see the horses all safe in the paddock, and the luggage ready to pack for an early start next morning. We were met at the Heyfield station by Mr. Sewell, the proprietor of the Temperance Hotel, with an open trap. It was raining cats and dogs, and we waited a little while under cover at the station before we got into the buggy, which by this time had been fairly converted into a municipal water-cart. However, we arrived undrowned at the hotel, and were soon comfortably discussing the excellent Christmas dinner which Mrs. Sewell had prepared for us, and which we made the most of, as being the last dinner we expected to see for some days.

After dinner we had a short ramble by the Thomson River, which flows through the township; the bridge is close to Mr. Sewell's. We turned over sundry logs in quest of Peripatus and Planarians, but could find none. The ground being dry, we only saw a number of ants, and some females of the Golden Beetle, *Lamprina rutilans*, which one is more accustomed to meet with in that stage of their existence which is spent up amongst the gum leaves. We noticed a few Rosehill Parrots, and learnt that there are plenty of Long-necked Tortoises and fine trout (*Galaxias*) and blackfish in the river. The rain coming on again, we returned to the hotel to look after the packing.

It may be of interest to any members of the Club who propose to go on a similar expedition to know what we took with us. The objects we had in view were three—(1) to make a more complete exploration of the lake and its surroundings than had hitherto been made; (2) to take as complete a series of photographs as possible; and (3) to collect natural history specimens. Our baggage was accordingly somewhat elaborate. For the first object we had to take—(1) horses and horse furniture, (2) tents and clothing, (3) provisions, and for the others appropriate photographic and collecting apparatus.

We took with us three riding horses and three packers, and also a youth, who provided his own mount. Each of the packers was, of course, provided with a pack saddle, with surcingle, side straps, centre straps, and crupper, leading rope, bell, and hobbles. Each riding horse had, in addition to the ordinary saddle and harness, a bell and hobbles. We also took half a dozen horse-shoes (slippers) and shoeing tools, including "ready-pointed patent nails with countersunk heads," for our leader's abundant

experience had taught him that, on such an expedition as ours, one or more of the horses is certain to cast a shoe; and, moreover, we had very rocky ground to travel over. As a matter of fact, the shoeing operation had to be performed twice during the trip—we need hardly add, by our all-accomplished leader. For mending the harness (which was in a parlous condition, even at the start) we had a good supply of kangaroo leather boot laces.

We took an ordinary tent, 8 x 6, capable of holding two or three comfortably, and which one wet night sheltered the four of us, and a small fly-tent open on the fire side. When folded up, the tent and fly served as covers for two of the packs. Before starting we had provided ourselves with a large supply of American leather, for some of us knew by previous experience that a first, second, and third necessity in the Gippsland bush is waterproof. We found four yards of the leather each not too much, and manufactured out of it various strange and uncouth-looking garments to be worn on horseback in case of wet weather, and to lay on the ground at night to keep the damp from the blankets. We each had a "poncho," consisting of a large square of American leather with a slit cut in the middle to put the head through, and also an apron of the same material to protect the knees, and a valise of size convenient for strapping in front of the saddle in which to stow the private kit, consisting of change of linen and sundries. The balance of his leather was used by Mr. Lucas to secure his press from damp, and by Dr. Dendy to form a case of elegant shape for his gun. Of course we all had large blankets.

As to provisions, we were well supplied with flour and baking powder, beef and bacon, tongues and sardines, cheese and butter, figs and prunes, jam and marmalade, tea, coffee and cocoa, with sugar but no milk. As we unfortunately took some of these in tins instead of putting them all in linen or canvas bags, things did, we must own, get a trifle mixed, but we were well out in the bush and hungry before we found the coffee in the butter, the prunes in the marmalade, and the shoeing tools in the bacon. To all who propose to similarly sojourn in the wilderness we strongly commend our friends the prunes and figs. The only culinary utensils we took were a spoon, a tin-opener, and three sizes of "billy," so that the smaller packed in the larger. When our leader had occasion to bake he manufactured a beautifully clean white bread-board on the spot out of the bark of a white gum or other convenient tree by the deft use of a tomahawk. Each carried a pocket knife of formidable appearance. Our leader disbelieves in ardent spirits of any sort, and though the others each took a flask in case of emergency, neither of them was opened on the journey.

We took two cameras. Mr. Howitt's was a half-plate with a lens

of so extraordinarily wide an angle that we came to think it could take in objects behind the camera. Dr. Dendy's was a very convenient travelling stereoscopic camera. The former used Ilford dry plates, Carbutt films, and stripping films, and the latter Fry's dry plates. Mr. Howitt took what Dr. Dendy calls a diabolical invention known as a changing bag, and which he guarantees to produce more blasphemy in a given time than any other piece of scientific apparatus yet invented. The bag is made of two thicknesses of red cloth, and has three openings or sleeves, a single one at one end, and a pair at one side. In through the single opening are put the dark slides (containing the plates to be changed) and the box of fresh slides. Then the operator's hands are thrust into the two sleeves at the side, which clasp the wrists tightly by means of an elastic band, and there he sits on the ground, before beaming spectators, in the roasting sun maybe, or, worse, in the full smoke of the camp-fire, both hands tied up in an irritating red bag, while he fumbles about for an indefinite period, trying in vain to make the plates go into their proper places without getting confused, while the perspiration streams from his face, and his utterances are frequent, brief, and emphatic.

Our collecting apparatus was varied, consisting of a double-barrelled breech-loader and ammunition, fishing-rod and tackle, bird-skinning apparatus (scalpels, scissors, forceps, cotton-wool, arsenical soap, and fuller's earth), a few Mason's jars of two sizes, some containing methylated spirit, others spirit and a number (the large jars will hold about 50) of 1-ounce corked pill bottles containing spirit, and prevented from shaking overmuch by interposed cotton-wool, and a few small tin boxes for Planarians, &c. We also took corrosive sublimate and rectified and absolute alcohol, but they were not required. Our travelling was rather too rapid to make the gun of much use. Dr. Dendy shot a few birds and the river lizards, and later on some ducks; but there was not much encouragement to shoot birds which there was no time to skin while good. The fishing-rod was a particular nuisance to carry, as were the camera legs, and a sapling would have served our purpose just as well as the rod. As it was, the gun got rusty and the rod was smashed. Mr. Lucas took a press for plants which has now been a good many trips in the bush. Mr. Howitt's compass, aneroid, and geological hammer completed our scientific equipment.

But we have not yet started on our expedition, having been waiting for our leader at Heyfield. He arrived about 11 p.m., and after supper we turned in. Next morning our work began in earnest.

24TH DECEMBER (CHRISTMAS EVE).—We got up about 4.30 a.m., packed the horses, had breakfast, and rode away from Heyfield at 8 a.m. Our cavalcade consisted of our three selves on our respective horses, the boy Alfred (who was engaged as a kind of

handy man for the trip), the three pack-horses, and an escort comprising Mr. Du Ve, of Rosedale, who had kindly assisted us in making our arrangements, and Mr. Cox, the mounted constable in charge of the district, who rode with us to Glenmaggie, perhaps to see us safe off the premises. There was also an uninvited member of the expedition in the person of a collie dog belonging to the owner of the pack-horses, who would not leave us, but accompanied us right up to the lake. We never discovered his name, though we tried him with all the names in the (dog's) calendar. The various eccentricities of our horses soon began to show themselves. The chestnut which Mr. Howitt rode was a light, plucky little horse; although he started with a sore back, which necessitated a re-stuffing of the saddle before we set out from Heyfield, so successfully did our leader handle him that on his return the sore was cured. Mr. Lucas's mount was a big bay, strong enough for half a dozen, who made a very poor attempt at keeping to the easy paces of the chestnut, but for carrying two, or for forcing his way up a steep bank, he was unrivalled. Dr. Dendy bestrode a big brown horse, who was no doubt very useful in the lowlands, but was about as clumsy among the rocks as a Manchester cart-horse, and suffered in consequence, as will appear in the sequel. The boy's horse was a skewbald, and though decidedly "a rum 'un to look at," seemed to be also "a good 'un to go."

The three pack-horses we shall not soon forget. Boco was blind of one eye. Brownie had a "jinked back," *i.e.*, was gone in the loins. Biddy went everywhere but on the track, and on coming to a tree took her pleasure in veering to the right if she saw you working to the left—a proceeding which leads to entanglement and unphilosophical language. But we shall discover more of the ways of packers as we proceed, and must not allow them to make us linger in our narrative as they did upon our journey.

We had first to leave the basin of the Thomson, and cross the low watershed which separates it from the basin of the Macallister, the Glenmaggie Creek being a tributary of the latter. The country between Heyfield and Glenmaggie is slightly undulating, and consists of sands, gravels, and conglomerates of the Upper Tertiaries. The timber is small and light, consisting in part of that poor creature, *Eucalyptus stuartiana*, the Apple-tree Gum, the wood of which is valueless even as fuel. Most of the birds—Leatherheads, Honey-eaters, &c.—seemed more or less familiar, and so did most of the plants of the underscrub. The most interesting plants that were new to us were the well-marked variety of *Trachymene billardieri*, called by the Baron von Mueller *cuneata*, the bushes of which were crowded with pretty white globular umbels; *Pomax umbellata*, which was in fruit; and a pink *Melaleuca*, which we failed to gather on our return.

Glenmaggie, eight miles from Heyfield, is rich in the surrounding river flats and cappings of old basalt on the hills above. Near it we entered on the Upper Silurian and more hilly country. Here we parted with our friends, and crossed the Glenmaggie Creek, more attracted by the big hills we could now see in the distance, than by the rather pretty little township. A big black snake lay across our road, which was broad enough to afford us glimpses of Biddy's peculiar style of tacking. After crossing another creek, our road lay along a long Silurian ridge, with occasional overlying tracts of basalt, which runs parallel to the Macallister River at a distance of one to two miles, and which culminates about a dozen miles to the north in the steep Blanket Hill. The contrast of the hard, yellow, bare Silurian and the soft, black, well-grassed basaltic soil appealed to the hoof as well as to the eye. The next hillside on our left presented a study in Eucalyptus foliage, the bright green leafage of the Stringybark (*E. macrorhynca*) alternating with the delicate blue of the Red Box (*E. polyanthema*). On the Blanket Hill we found the rare *Goodenia macmillanii*, which has a purple corolla, unusual in the genus. A pair of Cockatoos screamed over our heads, but did not give a chance of a shot. In a swamp at the foot of the hill a bittern suffered at Dr. Dendy's hands, but though he waded till our leader showed restless (for he wanted to push on), it was in vain, and the doctor remounted looking damp as to the legs. We continued to skirt the left bank of the river, the track narrower but still good and well worn.

At 1.30 p.m. we made our first ford of the Macallister River, 21 miles from Heyfield. Here we camped for lunch, and the unaccustomed exercise began to show its effects very markedly on some of us. At this bend of the Macallister is the only unavoidable ford between Heyfield and Glen Falloch, and it seems a great pity that the authorities do not build a bridge here. When the river is high with rains it is a serious matter getting across. Here we met Mr. William Riggall riding down from Glen Falloch, and his was the last outsider's face we were to see for a week. After lunch we pushed on, keeping near the river, our leader jogging ahead, anxious to bring us to the lake in good time.

At Hickey's Creek we left the river, which here comes from a considerable westward bend, and shortly after entered upon a southward projecting tongue of the Upper Devonian. This formation constitutes the whole of the district of the Upper Macallister and the Wellington rivers, including Mounts Crinoline, Tamboritha, and Wellington. It sends southward, on the west, the tongue to Glen Falloch and Hickey's Creek, and on the east a much broader stretch of country, comprising the Avon valley with Mount Angus and Ben Cruachan. These summits, with Mount Useful to the east, formed the most conspicuous land-

marks on our journey. Mounts Wellington and Tamboritha are over 5,000 feet high, and the Crinoline Hill is of not much less elevation.

A ride through a thicket of beautifully green young wattles gave us some new experiences in pack-horse leading, but we were now getting into the spirit of the exercise, and rather enjoyed new difficulties and discomforts. We passed a huge boulder of old red sandstone on our left, lying at the foot of the hill-slope, called by the natives the "Boukan's" Rock. Next over the Big Hill to Glen Falloch, with magnificent views on either side. The Devonian sandstones and mudstones seemed to be generally bedded more or less horizontally, and the deep ravines into which we looked down were seen to be in many cases bounded by steep, nearly vertical walls, the harder beds of rock standing out in often overhanging terraces, while the flat outline of the mountains appeared to be fringed by a single row of trees, so clearly was the foliage of the gums which grew close to the edge of the precipice projected against the sky.

We did not stay at Glen Falloch, as we had a good hour of daylight available, notwithstanding the delay caused by one of us having dropped his valise, and having had to ride back up the hill for it. On the Big Hill we had sighted a kangaroo, and near the station we came on a pack of dingoes. One handsome animal seemed willing to stand and face being shot; but while the doctor was dismounting, our collie ran barking forward, and the dingo was off like the wind with the rest of the pack. We pushed on, after leaving Glen Falloch, keeping close to the river, and camped on Herald's Flat, at a spot about two miles below the confluence of the Wellington and Macallister, and four from Glen Falloch. Mr. Riggall had given us permission to make use of a large paddock, with plenty of good clover feed for the horses, and of bracken ferns for bed-making. We pitched our tents about 7 o'clock, and uncommonly glad we were to do so, after our long ride. About Glen Falloch are numerous waterholes and billabongs, and any quantity of black ducks, but we had no time for sport; our idea was to travel on as fast as we could in going, and to collect on the return journey.

25TH DECEMBER (CHRISTMAS DAY).—We were all up at about 4.30 a.m. Dr. Dendy walked over to the nearest waterhole to try for some wild duck, but returned with only a Wattle Bird, of which there were numbers in the tall trees. He had shot the bird for "Shepherd's" breakfast, but raw or roasted the dog absolutely refused to touch it. It took us $3\frac{1}{2}$ hours to get breakfast, collect, saddle, and pack the horses, and take a photograph of the camp, and at 8 o'clock sharp we were on the track again.

The branch of the Wellington River whose source we inves-

tigated rises to the north of the mountain, runs west to unite with the other branch coming still further from the north, then the united stream flows westward, till beneath the Crinoline Hill it turns south to join the Macallister at an acute angle. Hence our course up the Wellington took pretty much the shape of an L—a northward line to the Crinoline, and then a line nearly due east to Mount Wellington.

Two miles jogging along the flats brought us to the last ford of the Macallister, and two more to the first on the Wellington. We had fine views of the Crinoline Hill, so called from its shape and well-marked terraces. At first it lay in front of us up the valley, and then on our left hand as we turned eastward at its base. We crossed the Wellington by an old camp of Mr. Howitt's, and stopped some time to look for a flat piece of iron he had planted there, to serve as an oven for our cakes, but it had vanished. While we were looking for it one of the horses got half-way back over the ford, intent on a return to Heyfield, but was speedily arrested. We saw more butterfly life in these wattled flats of the Macallister and lower Wellington than in any other part of the district. The blue *Ialmenus evagorus* was in great profusion, the chrysalids as usual attended by small black ants. The Hill Butterfly, two sorts of Brown, and the Painted Lady were flying freely, and ever and anon a Skipper darted out in front of us. The pendent nests of the Solitary Wasps (*Polistes*) were noticed several times, attached to the shrubs. The Wellington River has less extensive flats than the Macallister, and our mode of progression up the valley consisted in crossing a spur, longer or shorter, lower or higher, on one side of the river, fording, crossing a spur on the other side, fording, skirting the river, fording, and so on unto nearly forty fords.

After passing the Crinoline Hill, and making some 15 miles from Herald's Flat, we camped for lunch at 12.30 on the Wellington River below Breakfast Creek, and near the turn-off of Whitelaw's track. The river here is very beautiful, a wide and winding rock-bedded stream flowing between high hills thickly clothed with gum trees. Standing or seated on the smooth worn rocks we had abundant opportunity for observing how powerful a denuding and transporting agent lay before us. Beaches of large boulders, smoothed and rounded; pot-holes worked out as by the turner's lathe; huge rocks, isolated, at present defiant but obviously doomed to give way; and here and there a tree torn up by the roots. It must be a glorious sight to see that river in flood time, though we imagine it would be no easy matter to reach it at such a season. We boiled the (chief) billy on a pebbly shore to avoid all chance of kindling a bush fire, and after lunch had a most refreshing bath in the river, which was rather too shallow and broken here for a good swim. The effect of the

cold bath was simply magical. Even he who had just managed to roll off his horse "deadly stiff," felt himself again, and suffered no more the rest of the trip. A photograph was taken of the river, looking up stream. Here we saw *Physignathus howitti*, the Gippsland Crocodile of the press, really a lizard two or three feet long, of semi-aquatic habits, for the first time. Prof. M'Coy considers it to be a variety only of a Queensland species, *P. lesueurii*. It has been met with in Gippsland on all the rivers of the north and east, and was first described by Prof. M'Coy from specimens obtained for him by Mr. Howitt. Dr. Dendy shot three specimens altogether. In making a rough dissection of one Mr. Lucas found the stomach to be full of the heads, skins, and stings of a kind of bee, of which *Physignathus* had made a very clean collection. The reptiles seemed to be aimlessly basking on the rocks, but they were evidently not so idle as they looked.

Out of consideration to those members of the party who were not used to so much riding our leader decided to camp early for the night at a spot about four miles further on, on a well-grassed slope at the foot of what is known as the Gap or Saddle. As we had some hours to spare, Mr. Howitt and Mr. Lucas went botanizing, and the sportsman prowled about for birds. A rocky gorge, dim and deep in its recesses, showed us whence the river came, and where we could not hope to go with horses. On the rugged rocks at the entrance to the gorge we found the bright blue flowers of the *Lobelia*, *Isotoma axillaris*, and a number of everlastings, while nearer the river were numbers of flowering shrubs, as *Prostanthera rotundifolia*, *Daviesia buxifolia*, &c. With an idea of fishing in the evening we gathered some of the young grasshoppers which abounded. They all seemed to be common lowland species, such as *Ædipoda musica*, *Tropidonotus cinnamomicus*, of the ground forms, and the green *Phaneroptera valida* amongst the bushes. But though the pool was deep we were too tired to fish, and both fish and grasshoppers escaped. Few birds were seen except Musk Crows, and even of these no specimen was secured, another bird (*Strepera anaphonensis*) being shot in mistake for one of them. On our return to camp our leader initiated us into the art of making scones, and got photographed in the process. Alfred was appropriately told off to mind the cakes, while Mr. Howitt told us the legend of Bellin Bellin, the Musk Crow. At night we tried to get some Mountain Opossums, as the dog was barking up a tree, but we found that he was equally ready to bark up any other tree we chose to stop at, so "Jack" was voted a duffer, and again anathematized by our sportsman. Then we listened to incidents of the Burke and Wills rescue, and retired to rest with the pleasant voice of the river still murmuring in our ears.

26TH DECEMBER.—We were up again at 4.30, for one needs must rise early to make good stages in the bush. We had,

however, to-day but a short march before us, and took things easily, so that we had time to skin the bird and photograph the camp and river before we started. Our track lay up the hill-side and over the "Gap," then down again to the river. From the top of the Gap we had our best complete view of Mount Wellington, straight in front of us, with its two characteristic humps on the long summit. We descended to the river, passing close to a ruined hut in which Mr. Angus Shaw once lived. We came on to the river again close to a deep pool, flanked by an enormous vertical rock of black Devonian shale, which we stopped to photograph.

We found the photograph-taking rather a labour, as it involved unpacking one of the pack-horses to get out the apparatus, and thus caused half an hour's delay each time. Crayfishes were seen moving slowly at the bottom of the pool. We continued our journey up stream till we had made about 10 miles from our last camp, and found ourselves on a grassy flat near the junction of two branches of the upper Wellington, and almost at the foot of the mountain. Here we resolved to spend the afternoon collecting, and pitched camp at about 12.30. After lunch we went out to look for specimens, keeping to the banks of the river, which is here narrow, but beautifully clear, with a rocky or pebbly bottom, and with clusters of *Lomaria* now and again on the banks. We devoted ourselves principally to log-turning, and were rewarded by finding a new handsome black and yellow frog, six species of Planarian Worms (one new and others very rare), a number of earth-worms, and some curiously arranged eggs of insects. With the exception of a planarian, a few centipedes, *Scutigera*, and other millipedes obtained at another camp, the above comprised all the cryptozoic animals we met with. The frog will be described elsewhere, by Mr. Lucas, as *Limnodynastes nigro-lutea*, and the new planarian by Dr. Dendy, as *Geoplana howitti*, after our leader. Meanwhile, diagnoses and notes on the new or rare species obtained are added in an appendix to this paper. Dr. Dendy shot three birds this afternoon—viz., the New South Wales Green Oriole (*Mimeta viridis*), a Shining Flycatcher (*Myiagua plumbea*), and a Ground Thrush. Gang Gang Cockatoos and Wattle Birds were abundant near the camp, but the former kept well out of the way of the gun. Mr. Lucas caught a fine crayfish in the river, by means of a long forked rod. He considers it to be closely allied to the Yarra crayfish described by Professor McCoy as a variety of *Astacopsis serratus*, and to be best regarded as another variety of that species, and designated similarly, var. *wellingtonensis*. Details of the differences will be published.

About this camp the river flows from side to side of a broad, flat-bottomed valley, bordered by moderately steep grassy slopes.

The level land is thickly timbered with *Eucalyptus amygdalina*, *E. viminalis* (mountain variety), and is probably flooded at times. No plants of very special interest were noted, a very slender variety of *Veronica gracilis* being the prettiest and most abundant. The slopes were gay with the purple flowers of *Vittadinia australis*. In the evening we changed the papers in the press, skinned our birds, and experienced the full horrors of the changing-bag, called even by its author the "torture chamber."

27TH DECEMBER.—We were up about 4 o'clock—indeed, our leader was up a good deal earlier. Our horses were getting used to the hobbles, and the two big riding horses showed that they meant to lead the others into mischief. Mr. Howitt was up between 1 and 2 o'clock and brought them back to camp; and yet when he rose at 3 they were nowhere to be seen. He and Alfred accordingly set out in quest, while the others got breakfast ready, &c. The five were found at no very great distance, but the two ringleaders had left the home track, and made up a spur several miles. Fortunately Mr. Howitt had all knowledge of horses and their ways in the mountains at his fingers' ends, and presently he heard the faint, far-off tinkle of the bells, and the runaways were ridden back without much mercy. This was our last camp before reaching the lake, distant about eight miles, and the worst part of our journey lay before us. In view of this we packed up all the luggage and provisions which we were not likely to want, and made a *caché* of it on the top of a tall stump, out of the way of the dingoes, so as to lighten the loads of the packers as much as we could. Our camp was on the left bank of the river, and, after crossing it once more, and for the last time on our upward march, we made for a great spur of Mount Wellington, up which we struck. The spur was very steep in places, terribly long, and tolerably thickly timbered, and we had to proceed gently and rest the horses frequently.

The under scrub consisted of *Cassinia aculeata* and *Daviesia buxifolia* chiefly, and we noticed a few herbaceous plants, such as *Drymophila cyanocarpa*, the orchids *Dipodium* and *Gastrodia*, *Lobelias*, *Pimeleas*, &c. At last we reached the top, and were indeed rewarded for our climb. Turning a little to the right we found ourselves standing on the brim of a gigantic basin. Immediately opposite to us on the east side rose the main mass of Mount Wellington, towering in lonely grandeur above the surrounding hills, while far below in the hollow of the basin lay the little lake, known to the aborigines as Tali Kango Nigothoruka (the little lake on Wellington or Nigothoruk). It looked very small from where we stood, surrounded on all sides but one by precipitous and thickly wooded slopes. It really occupies an area of about 22 acres, but one end of it lay to our right, and was hidden by the trees on the mountain side below us. At this end

should be the outlet, but it is blocked by a great barrier of rocks, of which we now had a good view, though the actual rocks are concealed beneath an abundance of vegetation. At the other end we could see the gully of a small creek (Nigothoruk) which enters the lake, flowing down from the high plains above. Our photographers unpacked and secured the views, while Mr. Lucas made his way round under the precipice. It was beautifully decorated with clumps of the blue *Veronica perfoliata*, while on the less steep slopes below its white-flowered congener, *V. derwentia*, flourished in company with *Senecio laetus*. A number of small orchids, *Caladenia carnea* and *Pterostylis curta*, reminded us of the spring we had had so much earlier near Melbourne.

It looked an awkward job which lay before us, for we had to take seven horses down to that lake, through rocks and scrub into which even the wild cattle never venture. However, we scrambled down somehow or other, leading the horses, and making a track as best we could as we went along. A good bush fire is wanted here to clear things up a little. Fortunately, we reached the bottom without any serious mishap, though one of the packers fell and rolled over a bit. On the way down, as he was leading a horse with one hand, Dr. Dendy captured with the other a lizard, rare in this colony (*Amphibolurus angulifer*). Curiously enough, Dr. Dendy had obtained the same lizard before at Walhalla. It is a pretty little creature, allied to the Common Bloodsucker, of a general drab-brown colour, with a line of bright brown diamond-shaped patches down the middle of the back.

Arrived at length at the bottom, we had next to push our way through the scrub and boulders along the edge of the lake till we came to a patch of level ground where we could hobble the horses. This patch, the delta of one branch of a now dry creek, was covered, fortunately, with young and green wild raspberry shoots, which the horses ate voraciously. Then we had a swim in the lake, and found the water to be cold, clear, and deep. We pitched our camp a little further on, close to the lake, below a great fallen log in the other branch of the gully. Before this, however, Mr. Howitt had to despatch a large Copperhead Snake which occupied the ground we had set our minds on. The thick scrub comes down on the mountain sides nearly to the water's edge, leaving a narrow shelving, rocky beach, which is probably covered with water when the snows on the mountain melt.

The gully behind us was alive with birds, which we heard calling in every direction. There were Bower Birds and Lyre Birds, Gang Gang Cockatoos and Coachwhip Birds, and Pennant's Lorikeets, and on the lake we saw several Divers. We had little time for shooting, however, and the only victim was a Lorikeet, which we never had time to skin. Along the shores of the lake, and in the weeds at the edge were plenty of frogs (*Hyla lesueurii*), and

in the water we could see thousands of tiny trout. Close to our camp there was more greenery than elsewhere. Shrubs of *Orites* and *Lomatia*, *Coprosma*, and a few Blackwood trees, shaded us from too much sun, while our carpet consisted partly of a beautiful patch of the fern *Polypodium punctatum*, and partly of grass, studded with myriad blooms of the violets *V. hederacea* and *V. betonicifolia*.

After lunch we divided our forces. Mr. Lucas went fishing, Alfred stayed to fix up the camp, Mr. Howitt and Dr. Dendy went to look for the outlet of the lake. Mr. Lucas had brought up the smallest hooks and flies procurable in town, and made for a small rocky promontory by which the water was deep. The first throw of the fly caused a commotion—all the fish about wanted to bite. One rather bigger than the rest got on, and it seemed as if it would be easy to secure as many specimens as we wanted. But it soon became plain that the hooks were too large. Alfred caught two more, using worms and grubs as bait, but when the explorers came back they found the fishermen patient but scarcely hopeful. Dr. Dendy accordingly wished to try his hand, and succeeded in getting two more before tea-time by means of one of the fly-hooks stripped of the feathers and baited with a minute bit of cork stuck on the extreme point of the hook. Afterwards small pellets of dough were used, but it was obvious that the nature of the bait was of no consequence. Whatever it was, the fish went for it eagerly; as soon as it touched the water round came a shoal, but it was very difficult to hook them. Mr. Lucas made an ingenious net out of his blue fly-net, but in spite of all our efforts we only caught half-a-dozen altogether. The species proves to be a new one, and will be described by Mr. Lucas as *Galaxias nigothoruk*. The average length is about $2\frac{1}{2}$ inches, and the colour a dark olive green with multitudes of deep brown spots.

Mr. Howitt and Dr. Dendy made their way along the shore of the lake, and so came to the great barrier which dams the head of the valley. From the general lie of the country it was obvious that the lake must be connected with the Wellington River—indeed, that one branch of the latter takes its origin in the lake—and our explorers were now going to examine the valley below the barrier. They forced a passage through the thick scrub, which covers it and shows that the lake never bodily overflows. They crossed the barrier on the right, and found themselves at the head of a great gorge which they named the Valley of Destruction. The bed of this gorge is a jumbled mass of huge angular rocks, many as large as houses, piled on top of one another in inextricable confusion, while in the crevices between the rocks, and wherever a scrap of soil is available, a dense scrub grows, consisting in part of good-sized gum trees, while dead limbs and trunks have in many places fallen across the rocks and added their share to the general confusion.

To force their way through this was no easy matter, and progress was slow, as they had to go carefully with their photographic cameras over the rocks. Presently they saw through the trees on the left hand a great vertical cliff, a wall of naked rock, 400 or 500 feet high, towering above them in the distance. This cliff is part of Mount Wellington proper and forms the south-east side of the gorge. They stopped to take a photograph of this, which we propose to call Dendy's Heights, and then made their way until close under the foot of the precipice, when they photographed it again as best they could, for it was a difficult matter to get anything like an uninterrupted view through the thick scrub, and the camera had to be considerably inclined in order to take in the top. They now found that it was getting late, and that it was advisable to return to camp, so that, although they had fancied for some time that they could distinguish the sound of running water away below, they gave up the search for the afternoon. In returning they kept to the left or south-east side of the valley, and found the ascent here very much easier than on the other side or in the middle. They came back to the lake over the barrier again, close to the Mount Wellington side of the latter, and past a great twin gum tree near the water's edge, which forms a convenient indication of the best place to cross the barrier.

28TH DECEMBER (SUNDAY).—We were up early as usual, and after breakfast looked after the horses, which were taken to a gently sloping bank a little up the hillside, on which grew a little grass and plenty of bushes of the everlasting, *Helichrysum semipapposum*, of which the animals appeared to be fond. Large numbers of the pretty purple daisy, *Brachycome scapiformis*, grew amongst the grass, and climbing amongst the bushes a pink or purplish-tinged variety of *Clematis aristata* was remarked. This was our day of misfortunes, and these soon began to show themselves. It was found that Alfred's skewbald had staked himself or else been cut by the rocks. Anyhow a gaping wound appeared on his flank, some eight inches long and three broad at the widest. Still he didn't seem to mind it, and we hoped for the best, and as a matter of fact he never became at all lame, and got home quite happily. Then, leaving Alfred in charge of the camp, we all started at about 6 o'clock to make a determined effort to find the place of issue of the water. Profiting by the experience of yesterday, we went down easily enough as far as Dendy's Heights, and then, after a long and steep descent, matters became more exciting, for the rocky bed of the gorge became deeply channelled into dry gullies, which showed clear indications of the presence of running water at some time or other in the numerous rounded boulders and pebbles. We rapidly scrambled down what appeared to be the principal gully, but it was, even yet, an exhausting business, for we were in a great hurry to get to the

springs, which we felt certain must now be near us. Presently we distinctly heard the water, and at length the vegetation became visibly greener and more luxuriant, till suddenly we saw in front of us a small still pool among the rocks, as clear as crystal, and fringed with a rich growth of ferns. Into this pool a tiny streamlet trickled from between the rocks. The mystery was solved, and in just the way we expected, for it was evident that the water from the lake filtered through the barrier at the head of the gorge, and worked in underground channels between the rocks which partly fill the gorge, to come out here at length 550 feet below the level of the lake, at a point perhaps a mile and a half distant. We stopped awhile to rest and photograph, and soon found that this was not the only spring. Within ten yards of the pool was a beautiful little rocky-bedded stream, shaded with tree ferns and the musk and other Asters, *Prostanthera lasiantha*, &c., and we found that this came out in a number of springs a little higher up. There are probably at least half a dozen springs distinguishable, and most likely the position of the outlets varies with the quantity of water coming from the lake, so that at the time when there is most water in the lake the springs will rise at the very beginning of the watercourse we noticed in coming down. As the stream at whose source we were standing is only awkwardly styled the Wellington branch of the Wellington River, we baptized it by the name of the Barrier Creek, alluding to its mode of origin.

We now began to retrace our steps. We were anxious to make out the nature of the rocks in the middle and on the other side of the Valley of Destruction. We deliberately therefore chose the more difficult route, and found that a very distinct ridge ran down the middle of the valley, separating ravines on either side. The highest rocks lay along and helped to form this ridge. Pile after pile of great jumbled rocks succeeded one another in apparently endless confusion—huge blocks, like houses or haystacks, with yawning abysses between them, and horrible caverns under them, and dead trees fallen across them, and living scrub growing thickly in the crevices: and over all this wilderness we had to make our way. We climbed upwards, and upwards, scrambling between the rocks or over them, and in one case beneath them, only to find fresh barricades ahead of us. Now we turned to the right and then to the left as precipice after precipice baffled us. The rocks were found to be irruptive quartz porphyries, which Mr. Howitt considers to occur interbedded with the Devonian strata. They sometimes assumed strangely fantastic forms. One group was especially remarkable. One gigantic rock towered into the air, and bore another of about half the size perched upon its summit, while alongside were two other massive fellows each as big as the other two put together. It took us an hour and a half

to photograph this pile of rocks. It seems a long time, but it must be remembered that there was not an inch of level ground on which to set up the cameras, and we had to climb up on the top of several big rocks, where there was only just standing room for us and our apparatus, before we could find a suitable view. Finally we hit upon a good place, and while one photographed the others held the legs of the camera. Still proceeding, leaping or climbing according to our disposition, we came upon what we thought really must be part of a cliff *in situ*, so enormous was the single mass of rock. We had much difficulty in getting round this rock, and then, satisfied with the central ridge, made our way, partly by aid of a tree bridge over a chasm, slowly and wearily to the Wellington side of the valley. As we passed along the lake side Mr. Lucas noticed a very delicate little characeous plant growing in the water, which the Baron von Mueller is forwarding to Europe to the specialist, Professor Nordstedt. We reached our camp about midday, just as it was coming on to rain. A swim helped us to pull ourselves together again.

As to the manner in which the lake and the Valley of Destruction have been formed there is more than one opinion amongst us.

Mr. Howitt still considers that the most probable explanation as to Lake Nigothoruk is the action of a glacier which extended from the Mt. Wellington Plains down the valley. When he first visited the lake, and studied the structure of the whole country as seen from the shoulder of Mt. Wellington, both causes now assigned suggested themselves to him—namely, landslips and ice action. The Devonian formation at the lower end of the lake consists, so far as Mr. Howitt is aware, almost, if not altogether, of igneous rocks, being great thicknesses of quartz porphyry (possibly also of porphyrites), flanked to the east and west by sedimentary strata. After several visits to Lake Nigothoruk, and such examinations as limited time permitted, he is unable to conceive how in such formations there could occur landslips of the magnitude and of the kind necessary to support that hypothesis. The dam which blocks the valley extends from side to side at a place where the width is about ten chains. A spur on either side contracts the previous width of the basin-like expanse in which is the lake. The dam rises to some 100 feet above the present water level, and extends for over a mile down the valley, until at its termination it is some 500 or 550 feet below the lake. The centre of this great mass of angular rocks is higher than the sides, which at the range on either hand form a depression. It is at the termination of this gradually lowering mass of rocks filling the valley that the waters find their exit, as the source of one branch of the Wellington River. Mr. Howitt has been unable to observe any signs of landslips in the igneous rocks there. The form of the

dam, its structure, as well as the general character of Lake Nigothoruk strongly suggest to him a moraine blocking up the valley. To positively determine the real nature and origin of the lake will require a detailed geological examination of the locality, which at present it has not been possible to make.

Dr. Dendy explains matters as follows:—The upper part of the Barrier (and Nigothoruk) Creek originally flowed in a continuous stream down from the high plains through the valley or basin where the lake now is, but where there was then none, and then through a deep and at first narrow gorge bounded by two high cliffs, one on the Mount Wellington side and one on the other side, then onwards along its present course. The cliffs on either side of the narrow gorge weathered year by year; the frosts and heavy rains detached great fragments, which rolled down into the gorge and blocked it up. In this way the barrier was formed and the valley below partially filled with great rocks. The cliff on the side of the gorge away from Mount Wellington weathered away completely, the process being very probably aided by great landslips from time to time; on the Wellington side a great part of the cliff still remains. In this way the waters of the river were dammed back by a great barrier of rocks, and formed the lake, and the stream was divided into two parts—the Nigothoruk Creek, flowing down into the lake, and the Barrier Creek, which flows out through the Valley of Destruction. Apparently these two parts are now disconnected, but only apparently, for the water flows through the rocky barrier, and comes out again below it.

To Mr. Lucas's mind there are difficulties in both these explanations. The phenomenon is unique, and required a very precise and peculiar combination of conditions and forces to produce it. If it be a glacier lake there surely should be others in the district, and especially among the higher mountain ranges to the north-east. No such lakes exist. The moraine, if a glacier moraine, is most remarkable. The loose rocks are now angular, which implies comparatively recent weathering; they all seem to be of the same nature as one another and as the bed rock of Dendy's Heights and the rocks thought to be *in situ* in the central ridge. The group of rocks particularly described above showed plainly the way in which the rocks are still weathering. The landslip theory seems at first to explain matters; but, again, there are many narrow gorges and steep opposing cliffs, yet no other landslip lake is known in Gippsland. The top of the Barrier is as flat as that of a breakwater, and it is not easy to see how it could be levelled so uniformly if it were a landslip. The water, too, would find its way round a landslip, and soon construct a new channel, especially if the *debris* were accumulated gradually. He rather inclines to the view, then, that the water leaves the lake as it at first left the river bed, by fissures along the joints of the irruptive

rocks, and working its way along some of these underground channels, and choking up others with detritus, the supply and discharges of the lake are tolerably well balanced. Let a drainage system lower than the lip of the upper valley be once established and the river would cease to flow over the edge of the upper valley.

After lunch we packed up, and saddled the horses, and about 3 p.m. were ready to depart. Coming down to the lake had been bad enough, but going up proved to be a good deal worse. We had to lead the horses, of course, and had not gone much more than a hundred yards when Dr. Dendy's horse got its off hind leg into a hole at the foot of a ledge, which was concealed by a few loose stones lying over it. In spite of all efforts to hold him up by the head, he rolled over on to a lower ledge and lay on his back, still caught by the one leg, with the others in the air kicking wildly. He must have lain in this fix for nearly 20 minutes, the bone of his leg bent and expected to snap at any moment. We called back our leader and Alfred, tied up all the other horses, and bent all our energies on extricating the poor brute if possible. The first thing was to slip a halter round his free hind leg, and to hold it forward while we removed the loose stones and widened the hole as much as we could. Dr. Dendy got the tomahawk and cut down a sapling, out of which we made a lever, which we pushed under the animal's shoulder. Then Alfred tugging at his head with the halter, and two of the others pulling with all their might on the long arm of the lever, we succeeded in lifting him up on his three legs, when, to our delight and relief (for one of us had got out a cartridge expecting to have to put him out of his misery), he lifted the other foot out of the hole and stood upright on the ledge. As we knew must be the case, however, he was badly lamed. We had lost a good deal of time, but we started again, picking our way as carefully as we could, driving or coaxing the lame horse. Presently, as we were making a narrow sidling track along a steep place where only one horse could go at a time, poor old Brownie stumbled with his hind legs on some loose stones, and tumbled down the rocky slope below, rolling over and over until brought up some 30 feet below between a big fallen log and the hillside, where he lay sprawling, with his legs in the air. Fortunately he was carrying the bedding, and so was not hurt. It was certainly a comical sight, and made even the horseman who had to follow on the same track laugh; but we were late already, and wanted to get to a safe camp before dark, and this mishap was thus serious enough. There was nothing for it but to climb down after the brute, unpack him, lead him up again to the pass, and bring up the pack bit by bit. Brownie as nearly as possible went down again on this second passage, but was held on the track by main force. There was a tin billy strapped on the back of the

pack, and when we rescued it it was a most ridiculous object. It would puzzle a mathematician to say what shape it was. We packed up and started again, and without further misadventure reached the edge of the basin, and saw that a thick fog was rolling down Mount Wellington and filling up the valley. Then we discovered that the gun and fishing-rod had been left where the pack-horse had rolled down. This was rather disgusting, but as Mr. Howitt was the only one who could be trusted to find his way he volunteered to go back for the things, and rode off on the big bay. The rest of us waited, looking over the edge of the basin, and speculating on the probabilities of our leader never turning up again, till at length we were rejoiced to hear the clatter of his horse's hoofs on the rocks below, and Mr. Howitt emerged safe and sound from the fog, which now crept all around us. Off again, first taking care to find a tree, which we had marked with a cross on our way up, at the turn off to the track down the big spur. Dr. Dendy was presently observing to Mr. Lucas that Mr. Howitt was the only one who had had no misfortune, when our leader announced that he had lost the track in the fog. While we were smiling grimly at this last streak of ill luck a violent thunder-storm burst over us, and the rain came down in bucketfuls. We hastily donned our ponchos and aprons, and were glad to make use of the storm to collect some of the rain-water in a piece of waterproof. It relieved our thirst, and that is all we can say for it. Our leader did his best to recover the track, but the mist, rain, and approaching darkness were too much for him, and we had to abandon the hope of reaching our old camp. We could not camp on the top of the range, so we made down the hill-side into the nearest gully, and following this down soon came to a succession of small waterholes. It was now quite dark, so we tied up the horses to trees, and made our camp on a steep slope above the waterholes. Our first care was to make a fire, and this was done by tearing off the inner bark of the Stringy-bark, which was perfectly dry and made excellent kindling. The side of the hill was so steep that it was difficult to find a place where a fire would lie, but we managed it by dragging a big log across and piling up the sticks and smaller logs against it. When we wanted a flare-up to let us see what we were doing we threw a few twigs of *Daviesia buxifolia*, of which there were many bushes around us, into the fire. The essential oil burnt up at once, giving a brilliant white light. Then we had to drive pegs into the ground to put our feet against to prevent us from slipping down into the fire, with another above us to tie the blankets and waterproof to. We had a miserable tea, and the baking powder being exhausted we had to content ourselves with unleavened bread. Still we did not feel particularly unhappy, for we felt the day had not been devoid of interest, and we enjoyed

the novelty of the situation ; and, after all, things might have been worse. It had stopped raining, and we were too tired to rig up the tents, so we rolled ourselves up in our blankets and water-proof, after drying our clothes at the fire, and were prepared to spend the night thus. About midnight, however, the thunder-storm returned, with much rain, and we got up in a hurry and hastily rigged one of the tents, into which we all squeezed, and lay in a row, more or less unconsciously waiting for daylight.

29TH DECEMBER.—When daylight came it was still raining hard. We turned out at 3 o'clock, stiff and more or less miserable, and packed up as quick as we could. We did not stop for breakfast—indeed, there was none to stop for—but contented ourselves with a pannikin of water-cocoa apiece, and set ourselves in marching order. The lame horse was now stiffer than ever, with his leg fearfully swollen ; but we found he could go along fairly but very slowly when his leg warmed up, though at first he seemed to progress only on “three legs and a swinger.” We made our way up the hill through the wet bushes, hoping to strike our old track, but were too far to the east. Our leader, however, knew the lie of the country, and we made a new track, striking the Barrier Creek two or three miles above our camp, and reached the latter at 8.30, uncommonly glad to get there. The rain had soaked everything, and we had the greatest difficulty in lighting a fire. There was no stringybark near, and we spent a good hour or more before we succeeded in establishing a fire. We made a good breakfast off rashers of bacon, toasted on forked wattle sticks, had a swim, and felt all right again. We were now bush seasoned, and nothing came amiss or seemed to seriously inconvenience us. Before we could leave Mr. Howitt had to shoe Alfred's horse, and it was 2 o'clock before we were once more on our way, Dr. Dendy leading the lame horse. Our progress was necessarily slow, but we had all the better opportunity for looking around us. There was always a fresh excitement when we had to get the lame horse and the pedestrian over a ford. At first we rode him, which was rather a risky proceeding, and nearly resulted several times in the ducking of the rider. Then we gave that up, and led him over, the Doctor staying behind till another horse was led back for him. This caused much delay in mounting and remounting. The fords were so numerous that on our way up we had altogether lost count of them, so we cut a long wattle stick and made a notch in it for every ford we crossed. We thus found that in going down we crossed the Wellington River 35 times (in about 20 miles) and the Macallister five times. The fordings were much alike. One had to first brace up the mind of one's horse to go down a rather steep bank into the water, pulling down a packer after us ; then the horses felt their way among the boulders, some of

which gave way under their feet ; then, the coast being clear on the other side, the big horse would go up the bank like a house on fire, while the packer remained in the river to drink, so that one's arms were dragged pretty well out of their sockets holding back the one and lugging on the other. We found that some of the fords were characterized by the presence of particular shrubs on the banks—one by *Lomatia longifolia*, another by *Callistemon salignus*, and others respectively by *Dodonea viscosa*, *Prostanthera rotundifolia*, *Leptospermum scoparium*.

We managed to make 17 miles this afternoon and camped for the night near the creek which comes down from the Crinoline Hill. On the bank of the river close to the camp Dr. Dendy shot a very fine specimen of *Physignathus*, but although he made a resolute attempt to skin it by the light of the camp fire there was not time or light enough to finish it, and by the time we reached Melbourne the specimen was ruined. Even the skull was destroyed, for it was shot at close range with a charge of 8's.

30TH DECEMBER.—We rose early as usual and, immediately after having his breakfast, Alfred left us to ride on to Heyfield, where he had another engagement. To our great relief he took the dog with him. Before starting on our day's march we photographed a very fine terraced hill on the river, just below the camp, which looked as if it must be a splendid place for Rock Wallabies. Our day's march was not exciting and we had all we could do to make the lame horse go at all. We pushed on as fast as we could, and managed to save a good deal of time at the fords by double-banking Mr. Lucas's horse. On these occasions we felt the want of a detective camera, for we cannot adequately describe the scene in words—Mr. Lucas and Dr. Dendy crossing the ford, one behind the other on the same horse, carrying a gun and leading a pack-horse by a rope at the same time. They very nearly came to grief several times, but not quite. The only member of the party who thoroughly enjoyed the proceedings was our leader, who stood on the bank and laughed irreverently. About midday we stopped to photograph a fine red rock by one of the fords, and to save time we boiled the billy and made our frugal lunch at the same place. After crossing this ford we killed a fine example of the Black Snake (*Pseudechys porphyriacus*), but the doctor's ford stick was broken in half in the process and henceforth had to be carried in two pieces. Further on we stopped to photograph another terraced hill. Then we pushed on again and presently met Mr. William Riggall, who had heard of our approach from Alfred, and had very kindly ridden up from Glen Falloch to meet us. He accompanied us to the station, and on the way we left the lame horse in a paddock, and were glad to get rid of him. We hoped he would have recovered, but we might as well have shot him at the lake, for latest advices

inform us that he is no better, and will never be any good again. Poor horse! we cannot help being sorry for him, for all his clumsiness; and to think of the trouble we had to get him down from the mountains to a safe resting place! Shortly before we arrived at Glen Falloch Mr. Howitt caught a Freshwater Tortoise (*Chelodina longicollis*), in the middle of the road. The first thing the creature did was to emit a most foul and pungent smell, strongly resembling garlic, but he (or rather she) was secured and carried down to Melbourne in triumph notwithstanding, and may now be seen in the Aquarium at the Exhibition Buildings. At Glen Falloch we enjoyed the luxury of tea with milk and fresh bread and meat. Mr. Riggall was very anxious for us to stay the night, but it was only 5 o'clock, and Mr. Howitt and Mr. Lucas wanted to hurry on another eight miles and camp. Matters were compromised by Dr. Dendy's staying for the night for some duck shooting, the others riding on with the pack-horses and camping at Hickey's Creek. There were plenty of ducks about the station, and also some black swan on the river. There were also plenty of kangaroos in the neighbourhood, but we had no time to go and look for them.

Messrs. Howitt and Lucas rode on at a smart pace, and soon came to the Big Hill. The charm of the evening calm was now felt, and one of them, at least, felt this to be the most enjoyable ride in the trip. From the crest of the hill, the mountains to the east, with the sunlight still on them, were verdant with eucalyptus and acacia foliage, while those to the west were of a deep blue, gradually darkening as the evening advanced. Mr. Howitt told of earlier adventures in mountainous Gippsland, and related legends called up by the objects noted, legends handed down by generations of blackfellows who had lived in this rugged country we were travelling through.

At Hickey's Creek they turned off and forded the Macallister, camping in one of Mr. Riggall's paddocks. As it was very late only the fly was put up, but with a good fire in front it was not cold. A native bear in a tree close by gave us a musical entertainment in the early part of the night.

Messrs. Howitt and Lucas rose at about 3 o'clock, determined to get to Melbourne by the New Year. The Macallister at the place where they camped is a broad stream. Going down to wash and get water, they found that the frog met with at the lake abounded here also. They saw also some spiders running on the water after insects, which seemed to be rather a new line of life for spiders. Mr. Howitt took photographs of the camp and of the river. Then they rode back to Heyfield over old ground, and arrived there about 1 o'clock.

31ST DECEMBER.—Dr. Dendy started from Glen Falloch about 7 o'clock with Mr. Riggall, who was riding down to Glenmaggie,

and kindly lent him a fresh horse. They expected to overtake the rest of the party before reaching Heyfield (34 miles), but Mr. Howitt and Mr. Lucas were up and away too early, and when Dr. Dendy reached Heyfield at 1 o'clock he found them unpacking in front of Sewell's Temperance Hotel.

While we were unpacking, Alfred brought in a fine Nankeen Crane which had just been shot. After a splendid dinner we packed our traps and settled up, the last excitement being the drawing of lots for the remains of the provisions and sundry articles, such as tents and saddle bags, which had been purchased for the expedition. The Tortoise was placed in a tub of water for the afternoon, and surprised us by laying four eggs. Then we drove to the station and caught the evening train to Melbourne.

APPENDIX.

NOTES ON THE EUCALYPTS GROWING IN THE MACALLISTER AND WELLINGTON VALLEYS, &C.

Between Heyfield and Glenmaggie the eucalypts vary in kind according to the formation. In the alluvial flats, and up to the edge of the higher sandy and gravelly tracts, are found the Gippsland Red Gum (*E. tereticornis*), the Red Box (*E. polyanthema*), and the Apple-tree (*E. stuartiana*). On somewhat higher ground occur the Yellow Box (*E. melliodora*), with the White Stringybark (*E. piperita*), especially in sandy and gravelly ridges. The Iron-bank (*E. leucoxylon*) also is found in places.

About Glenmaggie, and thence by way of Blanket Hill to the Macallister River, the eucalypts vary according to soil and geological formation. Along the creeks and along the immediate course of the river is found the White Gum (*E. viminalis*). In the basaltic areas are found *E. tereticornis* and *E. melliodora*, while in the Silurian formation the Stringybark (*E. macrorhyncha*) and *E. polyanthema* prevail. On some ridges which were passed over before reaching Blanket Hill it was observed that in one place *E. stuartiana* predominated, in another *E. melliodora*, and in a third an isolated colony of *E. leucoxylon*.

It is to be noted that the White Stringybark (*E. piperita*) grows up the Macallister River as far at least as Hickey's Creek. It grows on the drier flats, while *E. macrorhyncha* occupies the hills. On the crest of some ridges of the Big Hill, between Hickey's Creek and Glen Falloch, a peculiar form of *E. goniocalyx* (Spotted Gum) is found. This is the case in other parts of the Gippsland mountains.

It was observed that *E. tereticornis* occurs in the Glen Falloch basin in the soft Devonian shales. This is quite exceptional, this tree being elsewhere limited to the alluvial tracts, and not